REMARKS

Claims 1-17 remain pending. Applicants note with appreciation that claims 1-4 and 6 were allowed, and that claims 9-17 were objected to due to informalities but otherwise indicated to contain allowable subject matter. Appropriate corrections to claims 9 and 11 have been made by the foregoing amendments. Reconsideration and withdrawal of the objections are respectfully requested.

Claims 5, 8-10, and 15 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

In particular, claims 5, 10, and 15 were rejected because they state that the batch "contains no sulfur," as it appears that they do contain "sulfur-containing compounds." Although Applicants respectfully disagree that the claims are indefinite, in an effort to advance prosecution claims 5, 10, and 15 have been amended to mention that the batch contains no "free" sulfur, i.e., in its elemental form.

No new matter is introduced by the amendments, as it is clear from the text of the specification (which otherwise mentions sulfide) and from the definition appearing in the table of Mendeleiev (copy included). This is particularly evident given that the claims call for a batch, glass, and/or process involving the sulfur-containing compounds molybdenum disulfide and strontium sulfide. Therefore, the mention of "no sulfur" would clearly be understood by persons of ordinary skill to mean that elemental or "free" sulfur is absent.

Claims 8-9 were rejected under 35 U.S.C. § 112, second paragraph, because the claims recite a range for the MoS_2/SrS ratio but do not specify whether it is a weight or molar ratio.

By the foregoing amendment, claim 8 has been amended to clarify that the ratio is a weight ratio. No new matter is introduced. A weight ratio is clearly apparent from the rest of the claim language and the specification, e.g., page 6, lines 10-12, which states: "The invention also proposes a bulk-tinted amber glass obtained from the above batch, which comprises, per 100% by weight of molten glass: ... MoO_3 between 0.05 and 0.5%; ... SrO: between 2 and 7%, the MoO_3 and SO_3 being obtained from molybdenum disulfide MoO_2 and strontium sulfide SrS such that the MoS2/SrS ratio in the batch is between 0.015 and 0.4 ..."

In view of the foregoing, reconsideration and withdrawal of the 35 U.S.C. § 112 rejections are respectfully requested.

Claims 7-10 were rejected under 35 U.S.C. § 102(b) as being anticipated by European Patent 1,193,226 to Oyama et al. ("Oyama").

Applicants respectfully traverse this rejection. Oyama describes amber glass that is used for lamps, in particular car direction indicators. The glass has a soda-lime-silica composition and proportions that are within a range disclosed, e.g., in Example 8 in Table 2 at page 6 of its description, with a color of the glass which is said to meet the SAE standard.

As recognized by the Office Action, claim 1 specifies a mixture comprising, per 100% by weight of mixture, 0.01% to 1% molybdenum disulfide by weight and 0.01% to 7% strontium sulfide by weight. This mixture is neither taught nor rendered obvious by Oyama or any of the remaining prior art of record. Claim 1 is thus patentable.

The Office Action asserts that "[b]ecause amber glasses having equivalent composition and structure to those of claim 7 can be produced by melting batches other than that of claim 1, (such as batches wherein the Sr and Mo components are provided by oxides rather than sulfides), the product-by-process limitation is not given patentable weight in determining distinctiveness of the claim."

Applicants respectfully submit the Office Action has failed to give proper weight to the limitations set forth in claim 7. Examination of product-by-process claims is discussed in the Manual of Patent Examining Procedure (M.P.E.P.) § 2113, which is reproduced in relevant part below:

> The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.)

(emphasis added). As explained in detail in the text of the specification, "[t]he aim of the invention is to propose a glass containing no toxic material, such as lead, cadmium etc. …, with a colour which is stable over time and does not vary and is insensitive to thermal shocks, with a high manufacturing production rate." page 4, line 22 to page 5, line 12 (emphasis added). The inventors discovered a glass having the underlined structural features is obtained when the original mixture contains SrS but not SrO as is used in Oyama.

In other words, the problem is not only to obtain an amber glass with specific constituting elements, but also to obtain a very special one, one which is stable in time and insensitive to thermal shocks. Such a glass is not disclosed or suggested in Oyama, and Oyama thus fails to disclose or suggest the glass of claim 7 for at least this reason.

Oyama discloses that MoS_2 may be added in the mixture as a source of molybdenum (Mo), and Na_2S and K_2S may be added in the mixture to as a source of sulfur (S) to obtain an amber glass. However, it was found that such components do not ensure consistency in the quality of the glass, such as color stability over time. In other words, Oyama does not disclose

an amber glass with the same physical characteristics that are achieved when molybdenum disulfide and strontium sulfide are used in the batch, as presently claimed.

Applicants also note that, surprisingly, the use of SrS as claimed in claim 1 (from which claim 7 depends), provides better stability in the obtained color during manufacturing, and an excellent quality of repeatability while using equivalent proportion on different batches, with respect to the color obtained at the exit of the fusion furnace. As additional evidence of this unexpected result, a table of measurements with native S and SrS is submitted herewith and explained on the attached page.

In view of foregoing, claim 7 is clearly novel and non-obvious. Claim 8 is patentable for at least the same reasons applicable to claims 1 and 7.

Regarding claims 8 and 9, the Office Action asserts, "Oyama teaches glass compositions that meet all the compositional limitation of the claims . . . The sulfur component is given by Oyama as S rather than SO_3 as in instant claims. However this sulfur would actually be present in the glass in the oxidized form SO_3 … Regarding the limitations that the MoO_3 and SO_3 are obtained from molybdenum disulfide and strontium sulfide, these are product-by-process limitations."

Contrary to the Office Action's statements, the structural quality of the glass will <u>not</u> be the same when SrS and MoS_2 are added in the batch, for reasons discussed above. Therefore, claim 8 is neither taught nor suggested by Oyama or the remaining prior art of record.

Dependent claims 9 and 10 are allowable for at least the same reasons applicable to claim 8, from which they depend, and for the additional reason that the claimed MoS_2/SrS ratio in claim 9 is clearly not disclosed or suggested in Oyama – which does not even disclose SrS. Also, claim 10, which specifies no free sulfur, is further non-obvious over Oyama, which discloses adding sulfur.

CONCLUSION

In view of the foregoing, favorable reconsideration and allowance of the subject application are respectfully requested. The Examiner is invited to telephone the undersigned at the number listed below if doing so would be helpful to resolve any outstanding issues.

Respectfully submitted,

Date: September 1, 2009

By: /Paul M. Rivard/

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Measurements after 4 minutes

Durée h	N° Echantillon	Série 1 X	Série 1 Y	OBSERVATIONS
0	1	568,5	429,4	S
24	2	566,5	429,7	
48	3	562,5	431,2	
72	4	560,0	432,0	
96	5	559,8	433,0	
0	7	579,3	419,2	SrS
24	8	579,0	419,0	
48	9	578,8	419,0	
72	10	578,5	418,8	
96	11	578,0	420,0	

Measurement conditions:

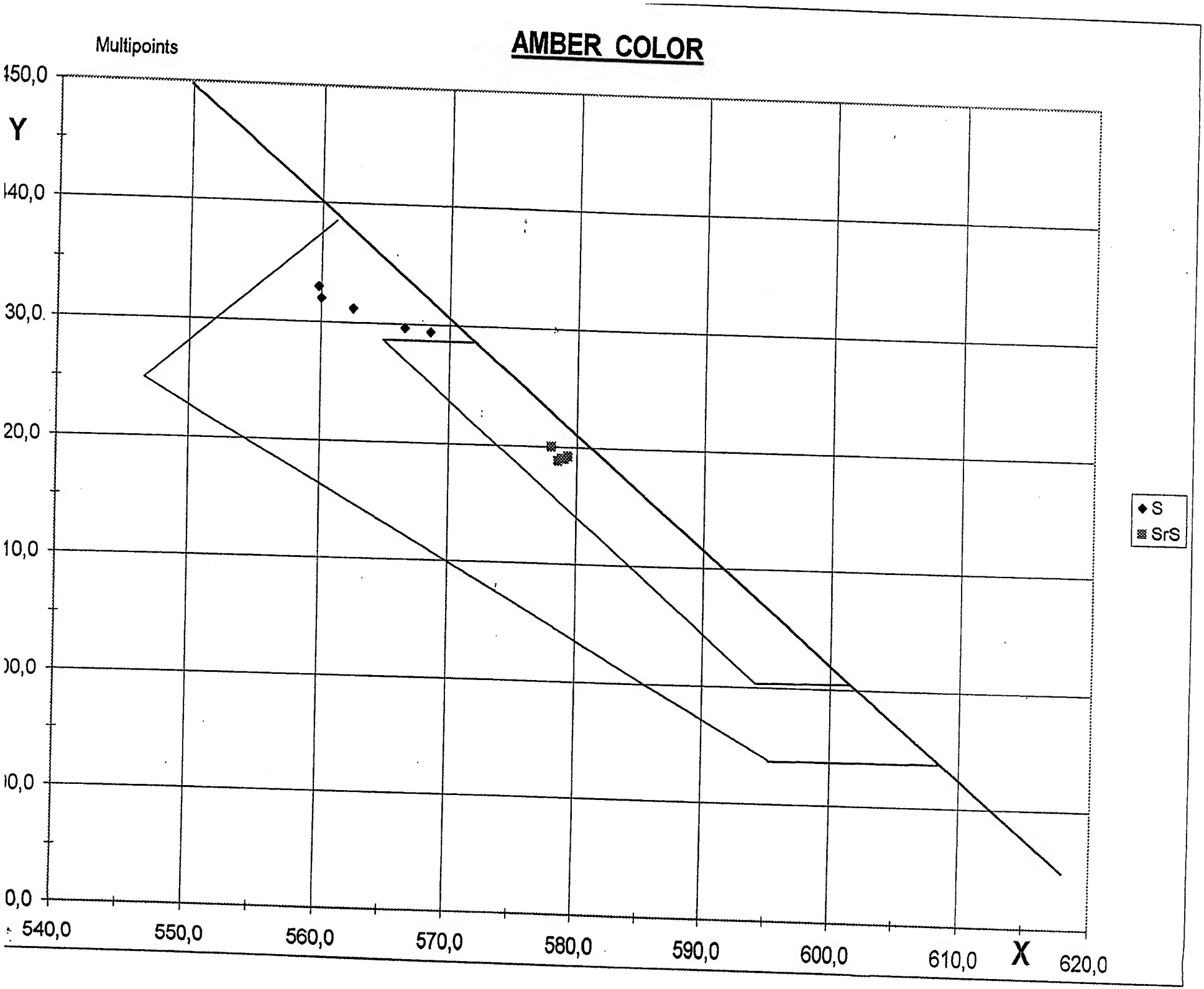
- Multipoints measurements
- Colorimeter THOMA TF6

Type " A " illuminant:

- Voltage = 13,5 volts.

Measurements after 4 minutes.

. X and Y = +/- 0,0008.


Multipoints
AMBER COLOR
150,0
Y
140,0
30,0
20,0
10,0
00,0
10,0
0,0
540,0
550,0
560,0
570,0
580,0
590,0
600,0
610,0
X
620,0
S
SrS

VERMONT S.A.
10270 MONTIERAMEY
FRANCE

TECHNICAL COMPARISON SRS/SULFUR

The experience of VERMONT based on use of glasses containing sulphide has surprisingly demonstrated that it is considerably better, comparatively than the one containing elementary sulfur. In other words it has been verified experimentally that the color and the stability with regard to the type of colouring product which is used was much better.

Herewith are results obtained with fusion of two batches of glass, one with native or elementary sulfur and the other with strontium sulphide.

The quantity of each product has been adjusted in order to obtain in theory the same kind of colour.

Samples have been extracted and bulb has been blown "with mouth" and have allowed representative samplings in thickness, as obtained through industrial manufacturing without thermal treatment. Then for evaluating possible modification of the color in time, the samples have been continued every 24 hours on four days.

Each sample was then measured on a identical thickness zone (1mm) with a colorimeter THOMA.

The table in appendix shows the measurements.

First constatations, the color obtained with the elementary sulfur is clearer than the other and such color loses intensity with time.

When Strontium Sulphide is used the results are much better (see table herewith).

The low reactivity of the native sulfur, and the difficulty to maintain its ratio at high retention values when it is used in a oven at temperature higher than 1300°C, implies adjustment constantly of the material quantity with regard to the fusion conditions and the time it stays in the bath. The resulting color is inconstant.

With the SrS, the quantities which are introduced are constant for a specific color with an excellent repeatitibility of the color for obtaining the request color precisely within the standards.

CRC

HANDBOOK of CHEMISTRY and PHYSICS

54TH EDITION

1973 - 1974

CRC PRESS

PERIODIC TABLE OF THE ELEMENTS

1a	2a	3b	4b	5b	6b	7b	8	1b	2b	3a	4a	5a	6a	7a	0	Orbit
1 +1 H −1 1.008₀ 1															**2** 0 He 4.00260 2	K
3 +1 Li 6.94₁ 2-1	**4** +2 Be 9.01218 2-2									**5** +3 B 10.81 2-3	**6** +2 C +4 −4 12.011 2-4	**7** +1 +2 +3 +4 +5 −1 N 14.0067 −2 2-5 −3	**8** −2 O 15.9994 2-6	**9** −1 F 18.9984 2-7	**10** 0 Ne 20.17₉ 2-8	K-L
11 +1 Na 22.9898. 2-8-1	**12** +2 Mg 24.305 2-8-2	Transition Elements							Transition Elements	**13** +3 Al 26.9815 2-8-3	**14** +2 Si +4 −4 28.086 2-8-4	**15** +3 +5 −3 P 30.9738 2-8-5	**16** +4 +6 −2 S 32.06 2-8-6	**17** +1 +5 +7 −1 Cl 35.453 2-8-7	**18** 0 Ar 39.948 2-8-8	K-L-M
							Group 8									
19 +1 K 39.102 -8-8-1	**20** +2 Ca 40.08 -8-8-2	**21** +3 Sc 44.9559 -8-9-2	**22** +2 +3 +4 Ti 47.90 -8-10-2	**23** +2 +3 +4 +5 V 50.941₄ -8-11-2	**24** +2 +3 +6 Cr 51.996 -8-13-1	**25** +2 +3 +4 +7 Mn 54.9380 -8-13-2	**26** +2 +3 Fe 55.847 -8-14-2	**27** +2 +3 Co 58.9332 -8-15-2	**28** +2 +3 Ni 58.71 -8-16-2	**29** +1 +2 Cu 63.546 -8-18-1	**30** +2 Zn 65.37 -8-18-2	**31** +3 Ga 69.72 -8-18-3	**32** +2 +4 Ge 72.59 -8-18-4	**33** +3 +5 −3 As 74.9216 -8-18-5	**34** +4 +6 −2 Se 78.96 -8-18-6	**35** +1 +5 −1 Br 79.904 -8-18-7	**36** 0 Kr 83.80 -8-18-8	-L-M-N
37 +1 Rb 85.467₈ -18-8-1	**38** +2 Sr 87.62 -18-8-2	**39** +3 Y 88.9059 -18-9-2	**40** +4 Zr 91.22 -18-10-2	**41** +3 +5 Nb 92.9064 -18-12-1	**42** +6 Mo 95.94 -18-13-1	**43** +4 +6 +7 Tc 98.9062 -18-13-2	**44** +3 Ru 101.07 -18-15-1	**45** +3 Rh 102.9055 -18-16-1	**46** +2 +4 Pd 106.4 18-18-0	**47** +1 Ag 107.868 -18-18-1	**48** +2 Cd 112.40 -18-18-2	**49** +3 In 114.82 -18-18-3	**50** +2 +4 Sn 118.69 -18-18-4	**51** +3 +5 −3 Sb 121.75 -18-18-5	**52** +4 +6 −2 Te 127.60 -18-18-6	**53** +1 +5 +7 −1 I 126.9045 -18-18-7	**54** 0 Xe 131.30 -18-18-8	-M-N-O
55 +1 Cs 132.9055 -18-8-1	**56** +2 Ba 137.34 -18-8-2	**57*** +3 La 138.9055 -18-9-2	**72** +4 Hf 178.49 -32-10-2	**73** +5 Ta 180.947₉ -32-11-2	**74** +6 W 183.85 -32-12-2	**75** +4 +6 +7 Re 186.2 -32-13-2	**76** +3 +4 Os 190.2 -32-14-2	**77** +3 +4 Ir 192.22 -32-15-2	**78** +2 +4 Pt 195.09 -32-16-2	**79** +1 +3 Au 196.9665 32-18-1	**80** +1 +2 Hg 200.59 -32-18-2	**81** +1 +3 Tl 204.37 -32-18-3	**82** +2 +4 Pb 207.2 -32-18-4	**83** +3 +5 Bi 208.9806 -32-18-5	**84** +2 +4 Po (209) -32-18-6	**85** At (210) -32-18-7	**86** 0 Rn (222) -32-18-8	-N-O-P
87 +1 Fr (223) -18-8-1	**88** +2 Ra (226) -18-8-2	**89**** +3 Ac (227) -18-9-2	**104** — 32-10-2	**105**												-O-P-Q

*Lanthanides	**58** +3 +4 Ce 140.12 -20-8-2	**59** +3 Pr 140.9077 -21-8-2	**60** +3 Nd 144.24 -22-8-2	**61** +3 Pm (145) -23-8-2	**62** +2 +3 Sm 150.4 -24-8-2	**63** +2 +3 Eu 151.96 -25-8-2	**64** +3 Gd 157.25 -25-9-2	**65** +3 Tb 158.9254 -27-8-2	**66** +3 Dy 162.50 -28-8-2	**67** +3 Ho 164.9303 -29-8-2	**68** +3 Er 167.26 -30-8-2	**69** +3 Tm 168.9342 -31-8-2	**70** +2 +3 Yb 173.04 -32-8-2	**71** +3 Lu 174.97 -32-9-2	-N-O-P
**Actinides	**90** +4 Th 232.0381 -18-10-2	**91** +5 Pa +4 231.0359 -20-9-2	**92** +3 +4 +5 +6 U 238.029 -21-9-2	**93** +3 +4 +5 +6 Np 237.0482 -22-9-2	**94** +3 +4 +5 +6 Pu (244) -24-8-2	**95** +3 +4 +5 +6 Am (243) -25-8-2	**96** +3 Cm (247) -25-9-2	**97** +3 Bk +4 (247) -27-8-2	**98** +3 Cf (251) -28-8-2	**99** Es (254) -29-8-2	**100** Fm (257) -30-8-2	**101** Md (256) -31-8-2	**102** No (254) -32-8-2	**103** Lr -32-9-2	-O-P-Q

Atomic Number → **50** +2 ← Oxidation States
Symbol → Sn +4 KEY TO CHART
Atomic Weight → 118.69
−18-18-4 ← Electron Configuration

Numbers in parentheses are mass numbers of most stable isotope of that element.

PERIODIC TABLE OF THE ELEMENTS

MELTING AND BOILING POINTS, AND ATOMIC WEIGHTS OF THE ELEMENTS

Based on the assigned relative atomic mass of $^{12}C = 12$

The following values apply to elements as they exist in materials of terrestrial origin and to certain artificial elements. When used with the footnotes, they are reliable to ±1 in the last digit, or ±3 if that digit is in small type.

Name	Symbol	At. No.	At. wt.	M.P.°C	B.P.°C
Actinium	Ac	89	(227)	1050	3200 ± 300
Aluminum	Al	13	26.9815[a]	660.37	2467
Americium	Am	95	(243)	994 ± 4	2607
Antimony	Sb	51	121.75	630.74	1750
Argon	Ar	18	39.948[b,c,d,g]	−189.2	−185.7
Arsenic (gray)	As	33	74.9216[a]	817 (28 atm)	613 (sub.)
Astatine	At	85	~210	302	337
Barium	Ba	56	137.34	725	1640
Berkelium	Bk	97	(247)	—	—
Beryllium	Be	4	9.01218[a]	1278 ± 5	2970 (5 mm)
Bismuth	Bi	83	208.9806[a]	271.3	1560 ± 5
Boron	B	5	10.81[c,d,e]	2300	2550 (sub.)
Bromine	Br	35	79.904[c]	−7.2	58.78
Cadmium	Cd	48	112.40	320.9	765
Calcium	Ca	20	40.08	839 ± 2	1484
Californium	Cf	98	(251)	—	—
Carbon	C	6	12.011[b,d]	~3550	4827
Cerium	Ce	58	140.12	799 ± 3	3426
Cesium	Cs	55	132.9055[c]	28.40 ± 0.01	678.4
Chlorine	Cl	17	35.453[c]	−100.98	−34.6
Chromium	Cr	24	51.996[c]	1857 ± 20	2672
Cobalt	Co	27	58.9332[a]	1495	2870
Copper	Cu	29	63.546[c,d]	1083.4 ± 0.2	2567
Curium	Cm	96	(247)	1340 ± 40	—
Dysprosium	Dy	66	162.50	1412	2562
Einsteinium	Es	99	(254)	—	—
Erbium	Er	68	167.26	1529	2863
Europium	Eu	63	151.96	822	1597
Fermium	Fm	100	(257)	—	—
Fluorine	F	9	18.9984[a]	−219.62	−188.14
Francium	Fr	87	(223)	(27)	(677)
Gadolinium	Gd	64	157.25	1313 ± 1	3266
Gallium	Ga	31	69.72	29.78	2403
Germanium	Ge	32	72.59	937.4	2830
Gold	Au	79	196.9665[a]	1064.43	2807
Hafnium	Hf	72	178.49	2227 ± 20	4602
Helium	He	2	4.00260[b,c]	−272.2[26 atm]	−268.934
Holmium	Ho	67	164.9303[a]	1474	2695
Hydrogen	H	1	1.0080[b,d]	−259.14	−252.87
Indium	In	49	114.82	156.61	2080
Iodine	I	53	126.9045[a]	113.5	184.35
Iridium	Ir	77	192.22	2410	4130
Iron	Fe	26	55.847	1535	2750
Krypton	Kr	36	83.80	−156.6	−152.30 ± 0.10
Lanthanum	La	57	138.9055[b]	921 ± 5	3457
Lawrencium	Lr	103	(257)	—	—
Lead	Pb	82	207.2[d,g]	327.502	1740
Lithium	Li	3	6.941[c,d,e]	180.54	1347
Lutetium	Lu	71	174.97	1663 ± 5	3395
Magnesium	Mg	12	24.305[c]	648.8 ± 0.5	1090
Manganese	Mn	25	54.9380[a]	1244 ± 3	1962
Mendelevium	Md	101	(256)	—	—
Mercury	Hg	80	200.59	−38.87	356.58
Molybdenum	Mo	42	95.94	2617	4612
Neodymium	Nd	60	144.24	1021	3068
Neon	Ne	10	20.179[c]	−248.67	−246.048
Neptunium	Np	93	237.0482[b]	640 ± 1	3902
Nickel	Ni	28	58.71	1453	2732
Niobium (Columbium)	Nb	41	92.9064[a]	2468 ± 10	4742
Nitrogen	N	7	14.0067[b,c]	−209.86	−195.8
Nobelium	No	102	(254)	—	—
Osmium	Os	76	190.2	3045 ± 30	5027 ± 100
Oxygen	O	8	15.9994[b,c,d]	−218.4	−182.962
Palladium	Pd	46	106.4	1552	3140
Phosphorus	P	15	30.9738	44.1 (white)	280 (white)
Platinum	Pt	78	195.09	1772	3827 ± 100
Plutonium	Pu	94	(244)	641	3232
Polonium	Po	84	(~210)	254	962
Potassium	K	19	39.10[2]	63.65	774
Praeseodymium	Pr	59	140.9077[a]	931	3512
Promethium	Pm	61	(145)	~1080	2460 (?)
Protoactinium	Pa	91	231.0359[a]	<1600	—
Radium	Ra	88	226.0254[a,f,g]	700	1140
Radon	Rn	86	(~222)	−71	−61.8
Rhenium	Re	75	186.2	3180	5627 (est.)
Rhodium	Rh	45	102.9055[a]	1966 ± 3	3727 ± 100
Rubidium	Rb	37	85.4678[c]	38.89	688
Ruthenium	Ru	44	101.07	2310	3900
Samarium	Sm	62	150.4	1077	1791
Scandium	Sc	21	44.9559[a]	1541	2831
Selenium	Se	34	78.96	217	684.9 ± 1.0
Silicon	Si	14	28.086[d]	1410	2355
Silver	Ag	47	107.868[c]	961.93	2212
Sodium	Na	11	22.9898[a]	97.81 ± 0.03	882.9
Strontium	Sr	38	87.62[g]	769	1384
Sulfur	S	16	32.06[d]	112.8	444.674
Tantalum	Ta	73	180.9479[b]	2996	5425 ± 100
Technetium	Tc	43	98.9062[f]	2172	4877
Tellurium	Te	52	127.60	449.5 ± 0.3	989.8 ± 3.8
Terbium	Tb	65	158.9254[a]	1356	3123
Thallium	Tl	81	204.37	303.5	1457 ± 10
Thorium	Th	90	232.0381[a]	1750	~4790
Thulium	Tm	69	168.9342[a]	1545 ± 15	1947
Tin	Sn	50	118.69	231.9681	2270
Titanium	Ti	22	47.90	1660 ± 10	3287
Tungsten	W	74	183.85	3410 ± 20	5660
Uranium	U	92	238.029[b,c,e]	1132.3 ± 0.8	3818
Vanadium	V	23	50.9414[b,c]	1890 ± 10	3380
Wolfram (see Tungsten)					
Xenon	Xe	54	131.30	−111.9	−107.1 ± 3
Ytterbium	Yb	70	173.04	819	1194
Yttrium	Y	39	88.9059[a]	1522	3338
Zinc	Zn	30	65.38	419.58	907
Zirconium	Zr	40	91.22	1852 ± 2	4377

Numbers in parentheses are mass numbers of most stable isotope of that element.

[a] Mononuclidic element.
[b] Element with one predominant isotope (about 99 to 100 % abundance).
[c] Element for which the atomic weight is based on calibrated measurements.
[d] Element for which variation in isotopic abundance in terrestrial samples limits the precision of the atomic weight given.
[e] Element for which users are cautioned against the possibility of large variations in atomic weight due to inadvertent or undisclosed artificial isotopic separation in commercially available materials.
[f] Most commonly available long-lived isotope.
[g] In some geological specimens this element has a highly anomalous isotopic composition, corresponding to an atomic weight significantly different from that given.